



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,730	02/22/2002	Labros S. Petropoulos	33356US1	8347

116 7590 04/10/2003

PEARNE & GORDON LLP  
526 SUPERIOR AVENUE EAST  
SUITE 1200  
CLEVELAND, OH 44114-1484

EXAMINER

FETZNER, TIFFANY A

ART UNIT	PAPER NUMBER
----------	--------------

2859

DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
10/080,730

Applicant(s)  
Petrooulos et al.,

Examiner  
Tiffany Fetzner

Art Unit  
2859



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Feb 22, 2002
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Feb 22, 2002 is/are a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4 6) ☐ Other:

Art Unit: 2859

**DETAILED ACTION**

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

***Drawings***

2. The drawings are objected to because **Figures 2a, 2b, 3, 4, 8, and 14** are just columns of numerical data, without any specification, (i.e. heading, table, legend, or key) to identify what the data represents, or to which coil configuration(s) the data is related to. The examiner suggests applicant's amend Figures 2a, 2b, 3, 4, 8, and 14 to include a heading, table, legend, or key) so that Figures 2a, 2b, 3, 4, 8, and 14 can be easily equated with the components of the invention from which the numerical data was obtained. Miscellaneous, unidentified data is not a proper figure, and is not easily referenced by an individual reading applicant's disclosure. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2859

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-6** are rejected under **35 U.S.C. 102(b)** as being anticipated by **Lampman**, US patent 5,497,089.

5. With respect to **Claim 1**, **Lampman** teaches and shows "An MRI gradient coil set, said coil set comprising: a uniplanar Z-gradient coil," [See figure 3 which shows that the windings for the z-axis of the insertable gradient coil shown in Figure 2 occur within a single plane, and col. 4 line 12 through col. 5 line 31.] **Lampman** also teaches and shows "a biplanar X-gradient coil; and a biplanar Y-gradient coil" [See figure 5, col. 7 line 66 through col. 8 line 9, where the windings for the x-gradients, and y-gradients are shown to be biplanar] Additionally, **Lampman** shows "said gradient coil set providing an open z-axis face." (I.e. a vertical opening along the z-axis) [See Figure 2, where the patient is inserted into a vertical, open face of the gradient coil, along the z-axis.]

6. With respect to **Claim 2**, **Lampman** teaches and suggests "at least one of said coils is a shielded coil", because **Lampman** teaches the presence of an RF shield 46 between the insertable RF and insertable gradient coils, and consequently at least one of the insertable gradient coils is a functionally shielded coil. [See col. 3 lines 54-59]

7. With respect to **Claim 3**, **Lampman** teaches and shows "said biplanar coils include shoulder reliefs." [See Figures 2, 5, 6, 8, and 1; abstract, col. 8 lines 10-40.]

8. With respect to **Claim 4**, **Lampman** teaches and suggests "at least one of said coils is a phased array coil", because the windings for the insertable axial z-gradient coil constitute an array

Art Unit: 2859

of windings, as shown in Figure 3, and **Lampman** teaches that the current density varies only along the axial direction of the z coil. [See col. 4 lines 36-38]. **Lampman** teaches that each winding is a discrete loop, at a distance from the isocenter and that the end sections of windings are tilted by an angle  $\theta$  relative to the z-axis. The tilting of the windings by an angle  $\theta$ , directly suggests that in sections 62 and 68 of figure 1 the current flowing through the windings along the z-axis, have a different phase due to the tilting angle  $\theta$  than the windings that occur in section 60 of Figure 2. It is well known that a group of windings is also considered to be an array of windings, therefore the arrangement of the windings of the z-gradient insertable coil suggests, and shows that the z-gradient insertable coil functions as a "phased array coil". [See col. 4 line 63 through col. 5 line 31. Figures 2 and 3.]

9. With respect to **Claim 5**, **Lampman** teaches "a radio frequency coil integrated therewith." [See RF coil 44, col. 3 lines 54-59] The same reasons for rejection, obviousness, and motivation to combine that apply to **claim 1** also apply to **claim 5**.

10. With respect to **Claim 6**, **Lampman** shows and suggests that "said coils are conjoined", (I.e. that the gradient coils are brought together so as to meet, or overlap). [See Figure 5, col. 5 line 32 through col. 8 line 9, Figure 4.]

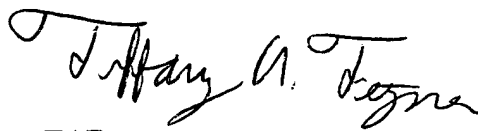
### *Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tiffany Fetzner** whose telephone number is (703) 305-0430. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

Art Unit: 2859

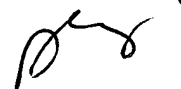
12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Diego Gutierrez**, can be reached on (703) 308-3875. The fax phone number for the organization where this application or proceeding is assigned is (703)305-3432 .

13. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0956.



TAF

April 7, 2003



**Diego Gutierrez**  
**Supervisory Patent Examiner**  
**Technology Center 2800**